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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Albert E. Seaver and William K. Leonard		
Serial No.:	09/841,380	Group Art Unit: 1734
Confirmation No.:	5859	Examiner: George R. Koch
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For:	ELECTROSTATIC SPRAY COATING APPARATUS AND METHOD	

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**REPLY BRIEF**

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This is in reply to the Examiner's Answer mailed July 15, 2004. This Reply Brief is being filed in triplicate. The issues in this appeal are relatively straightforward and can be decided based on the Briefs. Appellants do not request an oral hearing.

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## **ARGUMENTS OF APPELLANTS**

Section (10) in the Examiner's Answer repeats verbatim the corresponding passages in the Final Rejection. Appellants have already addressed the Final Rejection's arguments in their Brief on Appeal. This Reply Brief will address the further arguments set out in Section (11) at pages 8 – 19 of the Examiner's Answer.

### **Was it proper to reject claims 33 – 35 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,503,325 B1 (Hess)?**

The Examiner's Answer argues that Hess' steam blower would be used to scrape clean Hess' material web. The Examiner may be correct. To expedite matters Appellants will rely on their other arguments in the Brief on Appeal and this Reply Brief for reversing the rejection of claims 33 – 35 as anticipated by Hess. Ample reasons remain for reversal.

Boiled down, Appellants and the Examiner disagree as to the meaning and import to be ascribed to two phrases in rejected claims 33 – 35, namely that the conductive transfer surface transfers "a portion" of the liquid coating composition to a substrate, and that "following startup of the apparatus and one or more circulations of the conductive transfer surface, the target region has a continuous coating of the liquid coating composition before newly applied drops land". In the words of the Examiner's Answer at pages 8, 9 and 11:

*"Applicant's first argument, as recited in page I 5 of the appeal brief, is to argue that Hess, in cited Figure 3 (plus embodiments cited in column 6, lines 42-48 which recite the addition of a transfer roller) does not show "a continuous coating of the liquid coating composition before the newly applied drops land". However, it must be kept clear that in claims 33-35, the applicant is claiming an apparatus, not a method, and the apparatus must merely be capable of performing this method.*

*"In response to applicant's argument that does not show "a continuous coating of the liquid coating composition before the newly applied drops land", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of*

*performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458,459 (CCPA 1963)."*

...  
*"in the middle of page 17, applicant then reiterates that Hess is silent as to the amount or portion of coating medium is transferred. However, as stated above, this is an example of a method step, and the applicant is claiming an apparatus. "On page 18, applicant then argues that these arguments are not arguments as to intended use. However, this is not persuasive because the arguments do not rely upon actual structural differences. It is completely unclear as to what applicant means by the statement that they are relying on structural differences that will be observed "following startup of the apparatus and one or more circulations of the conductive transfer surface", since examination of the claims of an apparatus can only rely upon the actual claimed structure, and it is not at all apparent what these "observed" yet unclaimed structural differences would be in the case of circulating transfer surface."*

Appellants respectfully disagree. Appellants' rejected claims 33 – 35 do set forth the requested structural differences. For example, Appellants' recitation that "a portion" of the liquid coating composition is transferred to a substrate structurally defines an apparatus that does not transfer all of the liquid coating composition to the substrate. Appellants' recitation that "following startup of the apparatus and one or more circulations of the conductive transfer surface, the target region has a continuous coating of the liquid coating composition before newly applied drops land" structurally defines an apparatus that following startup has a wet drop target region. Hess's apparatus has not been shown to have either of these features. The Board is well aware that a rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference, *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990). The Board is also well aware that a reference must describe the claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it, *Akzo N.V. v. United States Int'l Trade Comm'n*, 808 F.2d 1471, 1479, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987).

The rejection of claims 33 – 35 as anticipated by Hess does not meet these standards. Hess mentions the possible use of a transfer roll in his device (see col. 6, lines 43 – 47), but does not show such a roll, does not say that the roll transfers “a portion” of Hess’ coating medium to his material web, and does not say that the roll will have a wet drop target region following startup. Hess does say that the transfer roll “then transfers the coating layer to the material web” (see col. 6, lines 46 – 47), indicating that all rather than a portion of the coating medium is transferred and that the drop target region remains dry following startup. Note that in the separately-cited Nakajima et al. reference (which unlike Hess does actually show a transfer roll), the transfer roll target area is scraped clean by scraper blade 22 and thus presents a dry drop target area following startup. The Examiner’s Answer has not provided a proper basis for concluding that a person having ordinary skill in the art who reviewed Hess would have been placed in possession of an apparatus that transfers a portion of a liquid coating composition to a target and that following startup has a wet drop target region.

The Examiner’s Answer says at page 10 that:

*“On page 16, the applicant then advances another argument, namely that the transfer roller is not conductive. However, conductivity is an inherent property, defined by electric potential differences. Hess discloses that the sprayer is an electrostatic sprayer, i.e., a charged sprayer. Hess also discloses that the substrate is held at ground (see the ground symbol in Figure). Since a transfer roller as recited by Hess would acquire the charged spray and then conduct the spray towards the grounded substrate, i.e., web, the transfer roller is conductive.”*

Appellants respectfully disagree. The Examiner’s Answer employs an incorrect definition for electrical conductivity, and uses the term “conductive” in two different ways, namely to refer to electrical conductivity and to material transport. Electrical conductivity depends upon current carrying ability, not upon electric potential differences. For example, an insulator and a conductor may both reside at the same high electric potential, yet only the latter can be said to be conductive. Also, Appellants used the term “conductive” to refer to electrical conductivity (see e.g., page 8, lines 1 – 6), not to refer to a roller that “would acquire the charged spray” and then merely transport it “towards the grounded substrate”. Hess has not been shown to disclose a conductive transfer surface as recited in claims 33 – 35.

Appellants renew their request that the 35 U.S.C. §102(e) rejection of claims 33 – 35 over Hess be reversed.

**Was it proper to reject claims 33 – 35, 37, 38, 43, 51, 52, 54 and 56 – 59  
under 35 U.S.C. §103(a) as being unpatentable over Hess  
and U.S. Patent No. 4,847,110 (Nakajima et al.)?**

Appellants and the Examiner disagree concerning the manner in which Hess and Nakajima might be combined, and concerning whether it is proper for the Examiner's Answer to rely on Nakajima et al.'s overall apparatus for some aspects of the rejection but to remove a part of that apparatus (*viz.*, scraper blade 22) for other aspects of the rejection. The Examiner's Answer asserts at page 12 that:

*“First, on pages 19, applicant argues that the statement in the Final Rejection that states that Hess indicates that powder coatings and liquid coatings are very similar. However, Hess discloses structures, which are applicable to either liquid or powder coatings (see column 6, lines 36-43). Therefore, with respect to the structures at discussion, the arts of powder and liquid coating are very similar, in the sense that they can both use electrostatic guns and both be used to apply to a moving web with a conductive transfer surface there-between. Therefore, when attempting to discern what structure to use for the transfer drum, Nakajima discloses a drum operates in an electrostatic environment and functions to meter, or control, the coating portions. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the structures organization as disclosed in Nakajima for the elements of Hess as such an organization would for transfer and metering of the coating spray.”*

If for the sake of argument these statements are taken at face value, they demonstrate why the proposed combination of Hess and Nakajima et al. would not provide an apparatus of rejected claims 33 – 35, 37, 38, 43, 51, 52, 54 or 56 – 59. These rejected claims all recite that “following startup of the apparatus and one or more circulations of the conductive transfer surface, the target region has a continuous coating of the liquid coating composition before newly applied drops land”, *viz.*, that the recited apparatus has a wet drop target region following startup. The Examiner's Answer asserts that Nakajima et al. should be consulted “to discern what structure to use for the transfer drum” and to obtain information on “functions to meter, or control, the coating portions” and “transfer and metering of the coating spray”. Nakajima et al.'s scraper blade 22 functions to meter, or control, the coating portions by limiting buildup of the image forming elements on transfer

cylinder **20**. Scraper blade **22** would accordingly be used as an intrinsic part of the structure and functions which the Examiner's Answer says should be obtained by consulting Nakajima et al. No proper basis has been provided for omitting scraper blade **22** while using the rest of Nakajima et al.'s transfer cylinder **20**. A proposed combination of references cannot change the principle of operation of the prior art invention being modified, see MPEP §2143.01. Also, "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention", see MPEP §2143.02. The Examiner's Answer has not established a proper basis for combining Hess and Nakajima et al. while leaving out Nakajima et al.'s scraper blade **22**.

Regarding claims 34 and 35, the Examiner's Answer asserts at page 12 that:

*"Furthermore, with respect to claim 34 and 35, applicant argues on page 22 that Hess and Nakajima do not disclose the direction of motion of the substrate and the transfer surface circulating in the direction of motion. However, Nakajima as incorporated does discloses the rotation especially as to claim 34 (see cited Figure 6, especially the arrows of the drum and the web, and cited column I I), and therefore, Hess and Nakajima as incorporated do disclose the transfer surface moving in the direction of motion."*

Appellants did not argue "that Hess and Nakajima do not disclose the direction of motion of the substrate and the transfer surface circulating in the direction of motion". Appellants argued that "Moreover, as to claim 34 Hess does not disclose an apparatus "wherein the substrate has a direction of motion and the transfer surface circulates in the direction of motion"."

Regarding claims 37 and 58, the Examiner's Answer asserts at pages 12 – 13 that:

*"With respect to claims 37 and 58, applicant argues on pages 22-23 that Hess does not disclose a transfer roller that is grounded. This argument is spurious since the rejection recites that Nakajima discloses that the transfer roller is grounded, and Nakajima has been incorporated to show interactions between the roller and the sprayer."*

If the Examiner's Answer can combine Nakajima et al.'s transfer cylinder **20** with Hess's device "to show interactions between the roller and the sprayer", and can incorporate Nakajima et al.'s cylinder grounding when doing so, why not use Nakajima et al.'s scraper

blade 22 as well? Scraper blade 22 has at least as much relevance as Nakajima et al.’s grounding connection with respect to the cited “interactions” between Nakajima et al.’s “roller and sprayer”.

Regarding claim 38, the Examiner’s Answer asserts at page 13 that:

*“With respect to claim 38, applicant argues on page 23, that the sprayers of Nakajima and Hess are not capable of producing a line of charged droplets.*

*However, the sprayers of Nakajima and Hess are capable of producing a line of charged droplets.”*

Appellants argued that “The Final Rejection has not provided a proper basis in Hess or Nakajima et al. for concluding that the devices of these references produce a line of charged droplets.” The Examiner’s Answer merely repeats the Final Rejection’s conclusion but does not provide the requested proper basis for that conclusion. As previously noted by Appellants, the Hess and Nakajima et al. devices are shown in cross-section only. They may produce circular patterns, and have not been shown to produce a line of charged droplets.

Regarding claim 43, the Examiner’s Answer asserts at page 13 that:

*“With respect to claim 43, applicant argues on pages 23-24, that Nakajima does not disclose a nip that forces the substrate against the conductive transfer surface. Applicant then goes on and describes a number of structural details (the spacing between rollers 20 and 24, the fact that the material is a powder, etc) which are neither required nor excluded by the limitations of the claims. Applicant further argues that Nakajima does not have a sufficient nip pressure. However, applicant’s claims do not recite a nip pressure. In response to applicant’s argument that the references fail to show certain features of applicant’s invention, it is noted that the features upon which applicant relies (i.e., i.e., a specified nip pressure) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).”*

Appellants used the phrase “nip pressure” when discussing Nakajima et al.’s outwardly-directed air pressure of about 0.5-10 kg/cm<sup>2</sup> (see e.g., col. 11, lines 29 – 32). Appellants

referred to structural details in Nakajima et al.’s device to explain how it transfers image-forming elements **1** to substrate **2**. Appellants did not rely on an asserted nip pressure in claim 43. Appellants relied on claim 43’s recitation of “one or more nip rolls that force the substrate against the conductive transfer surface”. Appellants also argued that Nakajima et al.’s device does not employ and in fact deliberately avoids using a nip roll that forces the substrate against the conductive transfer surface. The Examiner’s Answer fails to address Appellants’ arguments and the quoted language in claim 43. If Nakajima et al.’s substrate **2** was forced against transfer cylinder **20**, the image forming elements **1** could be crushed and rendered unsuitable for their later image-forming roles. Forcing the substrate against the transfer cylinder would also contravene Nakajima et al.’s recommendation that a space be maintained between the surface of adhesive **3** and transfer cylinder **20**.

Regarding claims 51, 52, 54, 56 and 57, the Examiner’s Answer asserts at pages 13 – 14 that:

*“With respect to claims 51, 52, 54, 56 and 57, applicant argues on pages 24-25 that neither Hess nor Nakajima discloses the specific substrates being coated. However, these substrates are not considered part of the apparatus, but rather items to be worked upon. Support for this interpretation is drawn from claim 33, which recites the structure of the apparatus as being the liquid coating composition, the circulating conductive transfer surface, and the electrostatic spray head, the intended operation of these elements allowing for the transfer of a liquid coating composition from the conductive transfer surface to the substrate. The substrate itself is never recited as an element of the apparatus, but rather as an intended work surface. Therefore, in response to applicant’s argument that the references do not disclose this intended work surface, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458,459 (CCPA 1963).”*

The Examiner's Answer argues that in claim 33, "The substrate itself is never recited as an element of the apparatus, but rather as an intended work surface". Appellants agree that in claim 33 the substrate is not recited as an element of the apparatus. The Examiner's Answer then reasons that a substrate can not be "considered part of the apparatus, but rather items to be worked upon" in claims 51, 52, 54, 56 and 57. This approach does not take into account the actual language employed in claims 51, 52, 54 and 57. "All words in a claim must be considered in judging the patentability of that claim against the prior art.", see *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Claims 51 and 52 recite an apparatus "further comprising the substrate, wherein the substrate comprises an insulative substrate". Claim 54 recites an apparatus "further comprising the substrate, wherein the substrate comprises a porous substrate". Claim 57 recites an apparatus "further comprising the substrate, wherein the substrate comprises an electronic film, component or electronic component precursor". A reader of these claims will understand that the phrase "further comprising the substrate" can not be ignored and that the substrate is a recited element of the claimed apparatus. A reader will also understand that these claims should not be interpreted as though the phrase "further comprising the substrate" was not part of the claim. In other words, under the claim interpretation adopted in the Examiner's Answer, claim 51 would be interpreted as though it read "An apparatus according to claim 33 wherein the substrate comprises an insulative substrate" rather than as actually written.

A similar argument applies to the Examiner's Answer's comments concerning claim 55. Appellants add that the embodiment of claim 55 is particularly difficult to obtain using conventional electrostatic coating. As noted in at page 4, lines 1 – 6 of Appellants' written description:

"Electrostatic spray coating heads can also be used to coat porous (e.g., woven or nonwoven) substrates. Notwithstanding any opposite charge that may be present on the substrate, sometimes the charged atomized drops will follow electric field lines that cause the drops to penetrate deep into or even completely through the porous substrate. This penetration loss requires an increase in the applied coating weight and can make it difficult to form coatings on only one side of a porous substrate."

and at page 12, lines 5 – 12:

“Through suitable adjustment of the nip pressure, penetration of the wet coating into the pores of a porous target web can be controlled and limited to the upper surface of the porous web, without penetration to the other surface of the web and preferably without penetration to the inner portion of the web. In contrast, when conventional electrostatic or other spray coating techniques are used for direct coating of a porous web, the applied atomized drops frequently penetrate into and sometimes completely through the pores of the web. This is especially true for woven webs with a large weave pattern or for nonwoven webs with a substantial void volume.”

Nothing in Hess or Nakajima et al. provides any basis for recognizing that problems in coating porous substrates even exist, let alone that the apparatus of Appellants’ claim 55 could coat a porous substrate without substantial penetration of the coating through the substrate. Discovering the source of a problem is part of the ‘subject matter as a whole’ which should always be considered in determining the obviousness of an invention under 35 USC §103, see MPEP §2142.02.

Regarding claim 59, the Examiner’s Answer asserts at page 15 that:

*“With respect to claim 59, applicant argues on page 26 that the arguments to claim 33 apply, and that further that Hess does not recite the step of transfer “substantially void-free” coatings whose “average caliper is less than the average drop diameter”. In response to applicant’s argument that the references do not disclose these void free and caliper sizing steps, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458,459 (CCPA 1963).”*

Claim 59 recites an apparatus in which “wherein the spray head produces drops having an average drop diameter”, “the transfer surface transfers a coating having an average caliper to the substrate” and “the average caliper is less than the average drop diameter”. These are structural recitations that are not met by Hess or Nakajima et al. whether taken alone or

in combination. Note for example that neither Hess nor Nakajima et al show or discuss a coating having an average caliper less than an average drop diameter.

Appellants accordingly renew their request for reversal of the rejection of claims 33 – 35, 37, 38, 43, 51, 52, 54 and 56 – 59 under 35 U.S.C. §103(a) over Hess and Nakajima et al.

**Was it proper to reject claims 36, 42 and 53  
under 35 U.S.C. §103(a) as being unpatentable  
over Hess and Nakajima et al. as applied to  
claims 33 – 35 above and further in view of  
Booth, *Evolution of Coating*?**

Regarding claims 36, 42 and 53, the Examiner's Answer asserts, *inter alia*, at pages 16 – 17 that:

*"With respect to claim 36, ... Booth suggests that a belt is useful when coating porous substrates (page 7, lines 7-10), and therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a belt as disclosed in Booth in order to coat porous substrates.*

*"With respect to claims 42 and 53, ... Booth suggests that such multiple transfer surfaces are useful for maintaining coating weight control and uniformity (see page 30, lines 12-15) and therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of transfer surfaces wherein the coating is transferred from a first surface to a second transfer surface as disclosed in Booth in order to maintain coating weight control and uniformity.*

*"Furthermore, the fact that the applicant argues that neither Hess and Nakajima have any motivation for including additional transfer surfaces is irrelevant, as Booth, the third reference, does have motivation for including additional transfer surfaces. Furthermore, the fact that including additional transfer surfaces substantially increases capital costs and decreases machine reliability (presumably by increasing the potential for a breakdown due to machine wear) is irrelevant. To one desiring control of the coating weight and uniformity, these trade-offs of increased capital cost and decreased reliability may be desirable and necessary, as Booth shows."*

As noted above and in MPEP §2143.02, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. Booth says that steel belt casting is best suited for use with a nip fed reverse roll coater (a coater not shown in Hess or in Nakajima et al.), that steel belt casting is a slow process that can no longer compete for a larger market share, and that steel belt casting has high capital cost, high maintenance, and is being preempted by new processes

such as Ultraviolet (UV) curing (see pages 38 – 39). The Examiner's Answer has not considered Booth in its entirety and instead appears to have employed hindsight reasoning when it selected and relied on Booth.

Appellants accordingly renew their request for reversal of the rejection of claims 36, 42 and 53 under 35 U.S.C. §103(a) as being unpatentable over Hess and Nakajima et al. in view of Booth.

**Was it proper to reject claims 38 – 41  
under 35 U.S.C. §103(a) as being unpatentable  
over Hess and Nakajima et al. as applied  
to claim 33 above and further in view of  
U.S. Patent No. 2,833,666 (Neidich)?**

Regarding claims 38 – 41, the Examiner’s Answer asserts at pages 17 – 18 that:

*“With respect to claims 38 – 41 ... it is clear to one of ordinary skill in the art that additional spray nozzles would allow for the treatment of a wider substrate.*

*Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized multiple applicator nozzles such as in Neidich in the overall apparatus of Hess and Nakajima in order to improve efficiency and improve production speed.*

As noted at page 3, 14 – 25, conventional electrostatic spraying usually requires charging and then neutralizing the substrate. The charged substrate can pose a mild to strong shock hazard to factory workers. Accordingly, it is not always feasible simply to widen the substrate in an electrostatic spray application, as this may cause an even greater shock hazard. Appellants’ invention can reduce this hazard by providing a conductive (and preferably, grounded) transfer surface beneath the electrostatic spray head which can remove charge and reduce or eliminate the need to charge the substrate (see e.g., page 7, lines 30 – 31). None of Hess, Nakajima et al. or Neidich teaches this advantage. Note in this regard that Nakajima et al.’s **Fig. 6** transfer cylinder embodiment employs substrate charging using corona charger **19**. Appellants’ discovery that such charging may be eliminated is part of the subject matter as a whole which should always be considered in determining the obviousness of an invention under 35 USC §103, see MPEP §2141.02.

Appellants accordingly renew their request for reversal of the rejection of claims 38 – 41 under 35 U.S.C. §103(a) as being unpatentable over Hess and Nakajima et al. in view of Neidich.

**Was it proper to reject claims 44 – 50 under  
35 U.S.C. §103(a) as being unpatentable over  
Hess and Nakajima et al. as applied to claim 33  
above and further in view of  
U.K. Patent No. 1,278,099 (Hall)?**

Regarding claims 44 – 50, the Examiner’s Answer asserts at pages 18 – 19 that:

*“With respect to claims 44-50, applicant argues on pages 34-36 that Hall does not suggest using at least 5 rollers per side, driven or undriven, merely that two rollers per side are used. However, Hall does suggest in difficult cases, up to 5 rollers per side may be needed. Hall also suggests delays in the rotation (see page 3, lines 12-18). Furthermore, Figure 2 of Hall shows In response to applicant’s argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is clear to one of ordinary skill in the art at the time of the invention would appreciate that the additional rollers would improve smoothening, and therefore it would have been obvious to do so in order to improve the coating smoothness. Hall also suggests rollers, i.e., rolls, and discloses the difficult case of 5 rollers per side. Hess and Nakajima recite that the substrate is a moving web.”*

Appellants did not argue that “merely two rollers per side” are used in Hall (see e.g., page 35, lines 3 – 9 in Appellants’ Brief on Appeal).

Appellants accordingly renew their request for reversal of the rejection of claims 44 – 50 under 35 U.S.C. §103(a) as being unpatentable over Hess and Nakajima et al. in view of Hall.

## CONCLUSION

Appellants' recitation that "a portion" of the liquid coating composition is transferred to a substrate structurally defines an apparatus that does not transfer all of the liquid coating composition to the substrate. Appellants' recitation that "following startup of the apparatus and one or more circulations of the conductive transfer surface, the target region has a continuous coating of the liquid coating composition before newly applied drops land" structurally defines an apparatus that following startup has a wet drop target region. Hess's apparatus has not been shown to have either of these features.

Appellants used the term "conductive" to refer to electrical conductivity (see e.g., page 8, lines 1 – 6), not to refer to a roller that "would acquire the charged spray" and then merely transport it "towards the grounded substrate". Hess has not been shown to disclose a conductive transfer surface as recited in claims 33 – 35.

Nakajima et al.'s scraper blade **22** functions to meter, or control, the coating portions by limiting buildup of the image forming elements on transfer cylinder **20**. Scraper blade **22** would accordingly be used as an intrinsic part of the structure and functions which the Examiner's Answer says should be obtained by consulting Nakajima et al.

Appellants did not rely on an asserted nip pressure in claim 43. Appellants relied on claim 43's recitation of "one or more nip rolls that force the substrate against the conductive transfer surface". If Nakajima et al.'s substrate **2** was forced against transfer cylinder **20**, the image forming elements **1** could be crushed and rendered unsuitable for their later image-forming roles. Forcing the substrate against the transfer cylinder would also contravene Nakajima et al.'s recommendation that a space be maintained between the surface of adhesive **3** and transfer cylinder **20**.

The Examiner's Answer's assertion that a substrate can not be "considered part of the apparatus, but rather items to be worked upon" in claims 51, 52, 54, 56 and 57 fails to take into account the actual language employed in claims 51, 52, 54 and 57. This assertion also would render superfluous the words "further comprising the substrate" in these claims.

The claim 55 embodiment is particularly difficult to obtain using conventional electrostatic coating, and is nowhere suggested in Hess or Nakajima et al.

As to claim 59, neither Hess nor Nakajima et al show or discuss a coating having an average caliper less than an average drop diameter.

As to claims 36, 42 and 53, Booth has not been considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.

As to claims 38 – 411, it is not always feasible simply to widen the substrate in an electrostatic spray application, as this may cause an increased shock hazard for workers. Appellants' invention can reduce this hazard by providing a conductive (and preferably, grounded) transfer surface beneath the electrostatic spray head which can remove charge and reduce or eliminate the need to charge the substrate (see e.g., page 7, lines 30 – 31). None of Hess, Nakajima et al. or Neidich teaches this advantage.

As to claims 44 – 50, Appellants did not argue that "merely two rollers per side" are used in Hall.

Appellants accordingly request that the 35 U.S.C. §102(e) rejection and all four 35 U.S.C. §103(a) rejections be reversed.

Respectfully submitted on behalf of 3M Innovative Properties Company



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